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EXAMINER
GRIFFIN, W

ART UNIT	PAPER NUMBER
1764	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademark

Office Action Summary

Application No.
08/914,244

Applicant(s)
Legendre et al.

Examiner
Walter D. Griffin

Group Art Unit
1764



☒ Responsive to communication(s) filed on Jun 26, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-23 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-23 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7, and 11-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Goodboy (4,364,858).

The Goodboy reference discloses a Claus catalyst in the form of activated alumina containing sodium oxide in an amount preferably between 0.1 and 2.5 wt% (1000 to 25000 ppm). This disclosed sodium oxide range of 1000 to 25000 ppm clearly anticipates the claimed ranges of 1200 to 2500 ppm, 1500 to 2500 ppm, 1200 to 2700 ppm, and 1700 to 2200 ppm sodium oxide. It is desirable for the catalyst to have a surface area greater than 300 m²/g. This clearly anticipates applicant's claimed surface area. The catalyst is in the form of agglomerated particles (i.e., beads), the size of which can be adapted to a particular situation (i.e., fixed bed, mobile bed, or fluid bed). The Goodboy reference clearly discloses a Claus reaction which

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necessarily results in the removal of sulfur compounds from gases. Goodboy also discloses that hydrolysis of organic sulfur compounds occurs. (See col. 3, line 54 through col. 7, line 4.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the

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inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4-6, 8, 9, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodboy (4,364,858) in view of Dupin et al. (5,244,648).

As discussed above, the Goodboy reference does not disclose that the catalyst further comprises the components in claims 4-6, does not disclose the bead sizes of claims 8, 9, and 22, and does not disclose the pore volume as claimed in claim 23.

The Dupin reference discloses alumina-based catalysts that may be used in Claus processes. The alumina agglomerates may be formed using cellulose, charcoal or starches. They may also contain other components such as silica or alkaline earth metals. The agglomerates have a volume of pores with a diameter greater than 10000 Å (1 µm) of greater than 0.1 cm³/g (>10 ml/100g). The volume of pores with diameters between 1000 Å and 10000 Å (0.1 µm and 1 µm) is between 0.10 and 0.15 cm³/g (10-15 ml/100g). This disclosure results in pore volumes that overlap those claimed in claim 23. (See col. 2, line 60 through col. 9, line 8.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the catalyst of Goodboy by forming the catalyst with the components

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disclosed by Dupin because such components are pore forming agents and their use results in a porous catalyst.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the catalyst of Goodboy by including silica or alkaline earth metals because the alumina will be heat stabilized.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the catalyst of Goodboy by having the pore volume within the ranges claimed because Dupin discloses that this pore volume results in an effective catalyst.

Regarding the claimed bead diameters, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the catalyst of Goodboy by utilizing a catalyst having the claimed bead sizes because Goodboy discloses that the size may be adjusted depending on the particular situation.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goodboy (4,364,858) in view of Flytzani-Stephanopoulos et al. (5,242,673).

As discussed above, the Goodboy reference does not disclose that the alumina catalyst is deposited on a support substrate.

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The Flytzani-Stephanopoulos reference discloses that sulfur recovery catalysts that contain aluminum oxide may be deposited on supports. (See col. 4, line 63 through col. 5, line 34.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the catalyst of Goodboy by supporting the catalyst as suggested by Flytzani-Stephanopoulos because a supported catalyst is equated to granules or pellets and therefore would be expected to be effective in a sulfur recovery process.

Response to Arguments

The argument that the Goodboy reference does not disclose applicant's claimed range of 1200 to 2500 ppm of sodium oxide with sufficient specificity to constitute anticipation is not persuasive because Goodboy's range of 0.1 to 2.5 wt% of sodium oxide is a preferred range. Since it is a preferred range, the examiner maintains that one having ordinary skill in the art would be directed by the disclosure of Goodboy to use amounts within this preferred disclosed range. Therefore, the evidence of ~~unexpected results is irrelevant as to overcoming the rejection.~~

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The argument that claims 11-15 are not addressed in the rejection is not persuasive because these claims are addressed in the rejection under 35 U.S.C. § 102(b).

The argument that there is no suggestion to use the claimed specific surface ranges is not persuasive because the disclosure in Goodboy that the specific surface is at least 300 m²/g clearly discloses specific surface values within the claimed ranges.

The argument that there is no motivation to combine the Goodboy and Dupin references in reference to claims 4 and 5 is not persuasive because Dupin suggests that the catalyst of Goodboy would be heat stabilized.

The argument that the features in claim 6 distinguish over the prior art is not persuasive because Dupin suggests the addition of cellulose for purposes of forming pores. This suggestion exists regardless of the sodium oxide content disclosed by Dupin.

Contrary to applicant's argument that Goodboy refers to grains, Goodboy also refers to agglomerated particles. See col. 5, lines 3-6.

~~The argument that the claimed bead diameter range~~
distinguishes over the prior art is not persuasive because Goodboy suggests that the size of the catalyst may be adjusted depending on the particular situation

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The argument that the Goodboy reference teaches particle sizes of 10µm or less and thus teaches away from depositing the catalyst on a support is not persuasive because Goodboy also teaches the production of agglomerated particles.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter Griffin whose telephone number is (703) 305-3774. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Marian Knode can be reached at (703) 308-4311. The fax phone number for this Group is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.



WALTER D. GRIFFIN
PRIMARY EXAMINER
ART UNIT 1764

WG
August 14, 2000